



# How much do buyers react?

Two cafés, one price change, two very different reactions.

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## The ratio

elasticity

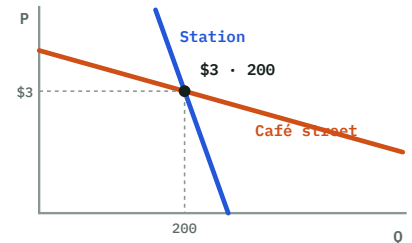
- **Price elasticity of demand** →  $\frac{\% \Delta Q}{\% \Delta P}$  — how many % of sales move for every 1% on the price
- **% change** =  $(\text{new} - \text{old}) \div \text{old}$  · economists drop the minus sign
- Station: price +20% (\$3→\$3.60), cups -6% (200→188) →  $6 \div 20 = 0.3$
- The same idea works for sellers → **price elasticity of supply** =  $\frac{\% \Delta Q_s}{\% \Delta P}$  (wheat farmers: 30% ÷ 10% = 3)

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## Two curves, two reactions

same price, different shops

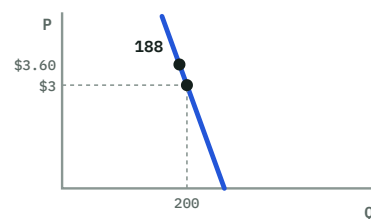
- Both cafés sell **200 cups** a day at **\$3**
- **Station café** — only shop in the train station → few substitutes → **steep** curve
- **Café street** — five other cafés next door → many substitutes → **flat** curve
- Watch out: elasticity ≠ slope · one straight line, a different ratio at each price (street: **3** at \$3, **1** at \$2) → compare curves from the same point



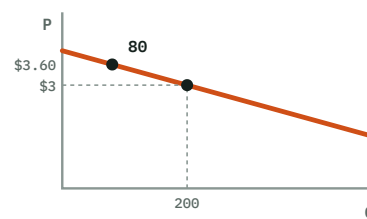
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## Elastic or inelastic?

compare with 1, not 0



**Inelastic · below 1**  
Station: ratio **0.3**  
price +20% → cups -6%



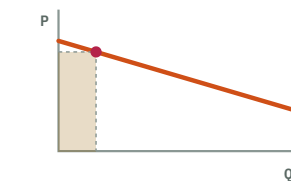
**Elastic · above 1**  
Café street: ratio **3**  
price +20% → cups -60%

Unit elastic = ratio exactly 1: cups move by the same % as the price

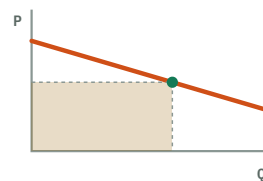
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## The revenue rule

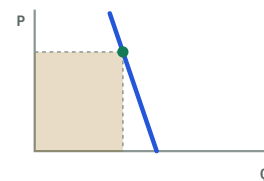
price × quantity



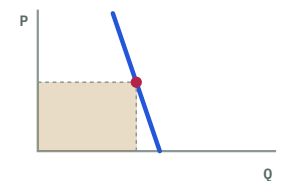
**Elastic, price ↑**  
street \$3→\$3.60  
\$600 → \$288 ↓



**Elastic, price ↓**  
street \$3→\$2.50  
\$600 → \$750 ↑



**Inelastic, price ↑**  
station \$3→\$3.60  
\$600 → \$676.80 ↑



**Inelastic, price ↓**  
station \$3→\$2.50  
\$600 → \$525 ↓

**Total revenue test** → price and takings move opposite ways: elastic. Same way: inelastic. On a straight demand line, revenue peaks where the ratio equals 1 (street: \$2, 400 cups, \$800).

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## What makes demand elastic?

four reasons

- SUBSTITUTES** more/closer alternatives → more elastic (one gas station vs. gasoline overall)
- NEED OR TREAT** needs (insulin) are inelastic · treats (a movie) are elastic
- SHARE OF BUDGET** a bigger expense → people look harder → more elastic
- TIME** demand gets more elastic over months, as buyers find alternatives

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## The math, step by step

concert tickets

- 1,000-seat hall: all sell at \$20. At \$25, only 600 would come.
- $(600 - 1,000) \div 1,000 = -40\%$  →  $(25 - 20) \div 20 = +25\%$  →  $40 \div 25 = 1.6$  → elastic
- **Midpoint method** (AP exam) → divide each change by the average of old and new → same answer up or down
- Takings: \$20 × 1,000 = \$20,000 → \$25 × 600 = \$15,000 — the higher price loses money
- Superstar, one night only: \$80→\$100 (+25%), 120,000→114,000 fans (-5%) → ratio **0.2**, very inelastic: no substitute for this night → **dynamic pricing** raises prices as fans rush in